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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/819,673

03/29/2001

Eiichi Murakami

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10/30/2003

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EXAMINER

COLEMAN, WILLIAM D

ART UNIT

PAPER NUMBER

2823

DATE MAILED: 10/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/819,673	MURAKAMI, EIICHI	
	Examiner	Art Unit	
	W. David Coleman	2823	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 26-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 26-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>10/03</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 2, 2003 has been entered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

3. The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 26-29 and 31-39 are rejected under 35 U.S.C. 102(e) as being anticipated by Miwa, U.S. Patent 6,522,384 B2.

5. Miwa discloses a semiconductor exposure apparatus as claimed. See **FIGS. 1-10** where Miwa teaches the disclosed invention.

6. Pertaining to claim 26, Miwa teaches an exposure apparatus for exposing a substrate with a pattern of an original, said apparatus comprising:

a housing **17** filled with a predetermined ambience (nitrogen, column 8, line 37), for accommodating therein at least a portion of a light path of exposure light;

a reflecting member (i.e., mirror **2**, **6** and **12**) disposed in said housing; and

a laser interferometer **20/27** having a light source and a light receiving element **19** for receiving light from the light source after being reflected by said reflecting member, wherein at least one of the light source and the light receiving element is disposed outside said housing.

7. Pertaining to claim 27, Miwa teaches an apparatus according to claim 26, further comprising a projection lens **22** for projecting the pattern of the original onto the substrate **23**, wherein said housing is effective to close one of (i) a space below the projection lens and accommodating the substrate therein and (ii) a space above the projection lens and accommodating the original therein.

8. Pertaining to claim 28, Miwa teaches an apparatus according to claim 26, further comprising a pressure reducing mechanism **34** for applying a vacuum to said housing.

9. Pertaining to claim 29, Miwa teaches an apparatus according to claim 26, further comprising a window provided at an interface between the inside and outside of said housing, for transmitting light from said laser interferometer therethrough (not shown).

10. Pertaining to claim 31, Miwa teaches an apparatus according to claim 26, further comprising a gas introducing mechanism **31/37** for introducing an inactive gas into said housing.

11. Pertaining to claim 32, Miwa teaches an apparatus according to claim 26, wherein one of nitrogen and helium is introduced into said housing.

12. Pertaining to claim 33, Miwa teaches an apparatus according to claim 26, wherein light to be used for the exposure is laser light having a wavelength not greater than 248 nm (column 3, line 5, please note that 193 nm is not greater than the wavelength of 248 nm).

13. Pertaining to claim 34, Miwa teaches an exposure apparatus for exposing a substrate with a pattern of an original, said apparatus comprising:

a housing filled with a predetermined ambience, for accommodating therein at least a portion of a light path of exposure light; a detection system having an optical system, wherein a portion of a light path of said detection system is disposed in said housing while at least a portion of the light path of said detection system including an electrical element thereof is disposed outside said housing; and a laser interferometer disposed outside said housing.

14. Pertaining to claim 35, Miwa teaches an apparatus according to claim 34, wherein said detection system is a detection system for executing focus adjustment of the substrate.

15. Pertaining to claim 36, Miwa teaches an apparatus according to claim 35, wherein the electrical element is one of a light source and a light receiving element.

16. Pertaining to claim 37, Miwa teaches an apparatus according to claim 34, wherein said detection system is a detection system for executing positional alignment between the original and the substrate.

17. Pertaining to claim 38, Miwa teaches a device manufacturing method, comprising the steps of; exposing a substrate with a pattern of an original by use of an exposure apparatus; and developing the substrate after the exposure, wherein the exposure apparatus includes (i) a housing filled with predetermined ambience, for accommodating therein at least a portion of a tight path of exposure light, (ii) a reflecting member disposed in the housing, and (iii) a laser interferometer having a light source and a light receiving element for receiving light from the light source after being reflected by the reflecting member, and wherein at least one of the light source and the light receiving element is disposed outside the housing.

18. Pertaining to claim 39, Miwa teaches an exposure apparatus for exposing a substrate with a pattern of an original, said apparatus comprising: a housing, filled with a predetermined ambience different from an atmospheric state, for accommodating therein at least a portion of a light path of exposure light; and a detection system including (i) a light source, (ii) a light receiving element for receiving light from the light source, and (iii) an optical system for directing light from the light source to the light receiving element, wherein a portion of light

path of said optical system is disposed in a first space enclosed by said housing, at least one of the light source and the light receiving element is disposed in a second space outside said housing, and the second space is filled with a predetermined ambience different from the atmospheric state.

Claim Rejections - 35 USC § 103

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

20. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miwa, U.S. Patent 6,522,384 B2.

21. Pertaining to claim 30, Miwa fails to disclose an apparatus according to claim 26, wherein an oxygen concentration in said housing is maintained at not greater than 10 ppm. Given the teaching of the references, it would have been obvious to determine the optimum thickness, temperature as well as condition of delivery of the layers involved. See *In re Aller, Lacey and Hall* (10 USPQ 233-237) "It is not inventive to discover optimum or workable ranges by routine experimentation. Note that the specification contains no disclosure of either the critical nature of the claimed ranges or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen dimensions or upon another variable recited in a claim, the Applicant must show that the chosen dimensions are critical. *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Art Unit: 2823

Any differences in the claimed invention and the prior art may be expected to result in some differences in properties. The issue is whether the properties differ to such an extent that the difference is really unexpected. *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986)

Appellants have the burden of explaining the data in any declaration they proffer as evidence of non-obviousness. *Ex parte Ishizaka*, 24 USPQ2d 1621, 1624 (Bd. Pat. App. & Inter. 1992).

An Affidavit or declaration under 37 CFR 1.132 must compare the claimed subject matter with the closest prior art to be effective to rebut a prima facie case of obviousness. *In re Burckel*, 592 F.2d 1175, 201 USPQ 67 (CCPA 1979).

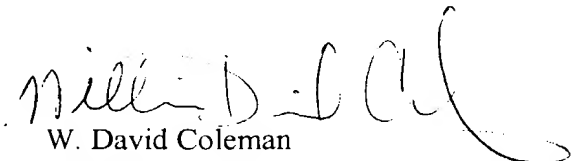
Conclusion

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to W. David Coleman whose telephone number is 703-305-0004.

The examiner can normally be reached on 9:00 AM-5:00 PM.

23. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 703-306-2794. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

24. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.


W. David Coleman
Primary Examiner
Art Unit 2823

WDC